



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/773,770	02/02/2001	Yuji Isoda	Q62998	6816

7590 01/07/2003

SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC  
2100 PENNSYLVANIA AVENUE, N.W.  
WASHINGTON, DC 20037-3202

EXAMINER

LEE, SHUN K

ART UNIT	PAPER NUMBER
----------	--------------

2878

DATE MAILED: 01/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/773,770

Applicant(s)

ISODA ET AL. 

Examiner

Shun Lee

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 11 and 14 are objected to because of the following informalities:
  - (a) in claim 11, "a green light and a red light" on line 10 and again on line 15 is indefinite and can lead to misinterpretation (it is suggested that the adjectives "first" and "second" should be used to particularly point out and distinctly claim the subject matter and that proper antecedent support for the "green light" and the "red light" in lines 11, 16, 18, and 19 be provided); and
  - (b) in claim 14, "a green light and a red light" on line 10 and again on line 17 is indefinite and can lead to misinterpretation (it is suggested that the adjectives "first" and "second" should be used to particularly point out and distinctly claim the subject matter and that proper antecedent support for the "green light" and the "red light" in lines 11-12, 18-19, 20, and 21 be provided).

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

Art Unit: 2878

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-3 and 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sieber *et al.* (US 5,391,884) in view of Huston *et al.* (US 6,087,666).

In regard to claims **1**, **3**, **7**, and **9**, Sieber *et al.* disclose a method comprises applying (column 5, lines 1-25) a target radiation or target ultraviolet rays (column 5, lines 37-39) to a means containing a terbium-samarium co-activated alkaline earth metal rare earth oxide phosphor which is composed of an oxygen atom and a composition of the formula (I):  $\text{BaGd}_2 : y\text{Tb}, z\text{Sm}$ , in which y and z are numbers satisfying the conditions of  $0 < y \leq 0.1$  and  $0 < z \leq 0.1$ , respectively (column 3, line 25 to column 4, line 18), to cause the phosphor to emit (*i.e.*, prompt emission; column 6, lines 36-42) a light (*e.g.*, green light at about 550 nm; Fig. 3). The method of Sieber *et al.* lacks measuring a light strength variation per unit time. Huston *et al.* teach (column 3, lines 1-7) that phosphors scintillate when exposed to ionizing radiation (*e.g.*, x-rays or ultraviolet rays) which advantageously permit real-time monitoring of ionizing radiation. Inherent in real time monitoring is measurement as a function of time. Therefore it would have been obvious to one having ordinary skill in the art to measure the light strength variation per unit time in the method of Sieber *et al.*, in order to perform real-time monitoring of the ionizing radiation as taught by Huston *et al.*

Art Unit: 2878

In regard to claim **2** (which is dependent on claim 1) and claim **8** (which is dependent on claim 7), Sieber *et al.* also disclose (column 5, lines 1-5) that the means is in the form of a sheet which comprises a support and a phosphor layer containing the phosphor.

In regard to claims **5** and **6**, Sieber *et al.* in view of Huston *et al.* is applied as in claims 1 and 3 above. Sieber *et al.* also disclose a method of producing a radiation image with a radiation image storage panel (comprising the phosphor) that comprises the steps of: determining (column 5, lines 25-30) the light strength in each pixel which is imaginarily set on the storage panel, to obtain two-dimensional image data; and producing (column 5, lines 30-36) a radiation image from the obtained image data.

5. Claims 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sieber *et al.* (US 5,391,884) in view of Huston *et al.* (US 6,087,666) as applied to claims 1 and 7 above, and further in view of Kastner *et al.* (US 3,412,248).

In regard to claim **4** (which is dependent on claim 1) and claim **10** (which is dependent on claim 7), Sieber *et al.* also disclose (column 1, lines 29-36; column 5, lines 37-39) that the radiation is ionizing radiation such as X-rays or Gamma rays or ultraviolet radiation. The modified method of Sieber *et al.* lacks the step of preparing a calibration curve by applying a standard target radiation (*e.g.*, ultraviolet rays) in a known dose. Calibration is well known in the art. For example, Kastner *et al.* teach (column 3, lines 45-53) that calibration charts are made for exposure of the dosimeter to known amounts of radiation in order to give measurement of the radiation to which the dosimeter is exposed. Therefore it would have been obvious to one having ordinary

Art Unit: 2878

skill in the art to apply a standard target radiation (e.g., ultraviolet rays) in a known dose in the modified method of Sieber *et al.*, in order to prepare a calibration curve so as to obtain measurements of the radiation to which the means (e.g., dosimeter) is exposed.

6. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sieber *et al.* (US 5,391,884) in view of Dewaele (US 5,832,055) and Arakawa (US 5,051,589).

In regard to claims 11 and 13, Sieber *et al.* disclose a method comprising the steps of:

- (a) applying (column 5, lines 1-25) a target radiation to a dosimeter containing a terbium-samarium co-activated alkaline earth metal rare earth oxide phosphor which is composed of an oxygen atom and a composition of the formula (I):  
$$\text{BaGd}_2 : y\text{Tb}, z\text{Sm}$$
in which y and z are numbers satisfying the conditions of  $0 < y \leq 0.1$  and  $0 < z \leq 0.1$ , respectively (column 3, line 25 to column 4, line 18), so as to cause variation of atomic valency for the terbium and samarium;
- (b) applying (column 5, lines 25-30) stimulating radiation (e.g., ultraviolet rays) to the dosimeter to which the target radiation has been applied, to cause the phosphor to emit an emission; and
- (c) measuring (column 5, lines 25-30) the emission.

The method of Sieber *et al.* lacks a step of comparing the emission to an initial emission obtained by application of ultraviolet rays before the application of the target radiation and that measuring the emission is a measurement of a green light strength and a red light strength. Dewaele teach (column 6, lines 22-26) to determine a calibration matrix

Art Unit: 2878

(which is required to correct for defects in a stimuable phosphor sheet; column 2, lines 5-36; column 3, lines 36-53) before every exposure for extreme accuracy. Sieber *et al.* also disclose (column 1, lines 29-36; column 5, lines 37-39) that the radiation is ionizing radiation such as X-rays or Gamma rays or ultraviolet radiation and (column 6, lines 36-42) that a terbium-samarium co-activated alkaline earth metal rare earth oxide phosphor can be employed by their prompt emission. Arakawa teaches (column 3, line 62 to column 4, line 2) that a single stimuable phosphor sheet capable of emitting light having different wavelengths allow novel energy subtracting processes. Therefore it would have been obvious to one having ordinary skill in the art to compare the emission to an initial emission obtained by application of ultraviolet rays before the application of the target radiation and that measuring the emission is a measurement of a green light strength and a red light strength in the method of Sieber *et al.*, in order to correct for defects in the stimuable phosphor sheet and to perform energy subtraction.

In regard to claim **12** which is dependent on claim 11, Sieber *et al.* is applied as in claims 2 and 8 above.

In regard to claim **14**, Sieber *et al.* in view of Dewaele and Arakawa is applied as in claims 11 and 13 above. Sieber *et al.* also disclose a method of producing a radiation image from a radiation image storage panel (comprising the phosphor) that comprises the steps of: determining (column 5, lines 25-30) the emission in each pixel to obtain two-dimensional image data; and processing (column 5, lines 30-36) the two-dimensional image data for producing a radiation image from the obtained image data.

***R s p o n s   t o   A r g u m   n t s***

7.      Applicant's arguments filed 22 October 2002 have been fully considered but they are not persuasive.

It is noted that claims 1-10 have been amended to include the limitation of prompt emission.

Applicant argues that Sieber *et al.* do not utilize a light or lights produced spontaneously upon irradiation of the radiation or ultra-violet rays. Examiner respectfully disagrees. Sieber *et al.* state (column 5, lines 37-39) "It should be noted that the initial radiation used to produce the image pattern is not limited to X-radiation and may instead include ultraviolet radiation" and (column 6, lines 36-42) "While the phosphors can be employed for their prompt emission following exposure to X-radiation, they are more preferably employed as storage phosphors that is, for their ability to emit electromagnetic radiation in a chosen wavelength range after being exposed to X-radiation and then stimulated by exposure to radiation in a third spectral region". Thus, Sieber *et al.* do utilize a light or lights produced spontaneously upon irradiation of the radiation or ultra-violet rays.

***Conclusion***

8.      Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not



Art Unit: 2878


mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shun Lee whose telephone number is (703) 308-4860. The examiner can normally be reached on Tuesday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703) 308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

SL  
January 2, 2003



**DAVID PORTA**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**